



TSMC-02-405

March 9, 2004

TO: Commissioner for Patents
P.O.Box 1450
Alexandria, VA 22313-1450

Fr: George O. Saile, Reg. No. 19,572
28 Davis Avenue
Poughkeepsie, N.Y. 12603

Subject: | Serial No. 10/766,596 01/27/04 |

Baw-Ching Perng et al.

ZIRCONIUM OXIDE AND HAFNIUM OXIDE
ETCHING USING HALOGEN CONTAINING
CHEMICALS

INFORMATION DISCLOSURE STATEMENT

Enclosed is Form PTO-1449, Information Disclosure Citation
In An Application.

The following Patents and/or Publications are submitted to
comply with the duty of disclosure under CFR 1.97-1.99 and
37 CFR 1.56.

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being
deposited with the United States Postal Service as first class
mail in an envelope addressed to: Commissioner for Patents,
P.O. Box 1450, Alexandria, VA 22313-1450, on March 16, 2004.

Stephen B. Ackerman, Reg.# 37761

Signature/Date

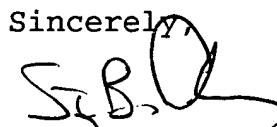
 3/16/04

U.S. Patent 6,306,715 to Chan et al., "Method to Form Smaller Channel with CMOS Device by Isotropic Etching of the Gate Materials," describes a method for isotropically etching a metal oxide such as HfO₂.

The following two U.S. Patents provide for a method of removing a high k dielectric layer such as Ta₂O₅, ZrO₂, and HfO₂ by reducing the metal oxide to a metal or to a metal hydride which is then etched by an acid solution:

- 1) U.S. Patent 6,300,202 to Hobbs et al., "Selective Removal of a Metal Oxide Dielectric."
- 2) U.S. Patent 6,432,779 to Hobbs et al., "Selective Removal of a Metal Oxide Dielectric."

U.S. Patent 6,297,539 to Ma et al., "Doped Zirconia, or Zirconia-Like, Dielectric Film Transistor Structure and Deposition Method for Same," describes a means of improving the electrical properties of ZrO₂ and HfO₂ by doping with a trivalent metal.

Sincerely,


Stephen B. Ackerman,
Reg. No. 37761

<p>Form PTO-1449</p> <p>INFORMATION DISCLOSURE CITATION IN AN APPLICATION</p> <p>(Use several sheets if necessary)</p>				Document Number (Specifier)	Atticase Number		
				TSmc-02-405	10/766,596		
				Applicant			
				Baw-Ching Perng et al.			
				Filing Date	01/27/04		
				Drawn At/From			
U. S. PATENT DOCUMENTS							
EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME		CLASS	SUBCLASS	SEARCH DATE & APPROXIMATE
OIPF	6 306715	10/23/01	Chan et al.		438	301	1/8/01
MP 19 2004 88	6 300202	10/9/01	Hobbs et al.		438	287	5/18/00
DEMAW 2004	6 432779	8/13/02	Hobbs et al.		438	287	1/30/01
	6 297539	10/2/01	Ma et al.		257	410	7/6/00
FOREIGN PATENT DOCUMENTS							
	DOCUMENT NUMBER	DATE	COUNTRY		CLASS	SUBCLASS	Translation YES NO
OTHER DOCUMENTS (Including Author, Title, Date, Portion or Pages, Etc.)							
EXAMINER				DATE CONSIDERED			

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP § 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant.